

ABSTRACT

A. three-shift lifting mechanism includes a hydraulic device disposed at the front side of a valve block and adapted to lift a lifting tube to raise weights, the hydraulic device defining an oil accumulation chamber, a rapid-lifting oil chamber for rapid
5 lifting of the lifting tube to the lifting position, and a high-pressure oil chamber for lifting the lifting tube to raise weights, a piston pump disposed at the back side of the valve block and defining a front working chamber and a rear buffer
10 chamber, and oil passages so arranged that hydraulic oil can be supplied from the oil accumulation chamber and the rear buffer chamber to the front working chamber and then to the rapid-lifting oil chamber or the high-pressure oil chamber to lift the lifting tube.